

Title (en)  
A HEARING DEVICE COMPRISING DIRECT SOUND COMPENSATION

Title (de)  
HÖRGERÄT MIT DIREKTER SCHALLKOMPENSATION

Title (fr)  
DISPOSITIF AUDITIF COMPRENANT UNE COMPENSATION DU SON DIRECT

Publication  
**EP 3681175 A1 20200715 (EN)**

Application  
**EP 20150419 A 20200107**

Priority  
EP 19150885 A 20190109

Abstract (en)  
A hearing device, e.g. a hearing aid, configured to play sound into an ear canal of a user, the hearing device comprising• at least one input transducer (IT<sub>q</sub>) for picking up sound s<sub>q</sub> at said at least one input transducer from a sound field S around the hearing device and providing corresponding at least one electric input signal(s)  $I_{N<sub>q</sub>}$  representing said sound s<sub>q</sub>,  $i=1, \dots, Q$ , where  $Q \geq 1$ ;  
• an analogue to digital converter for converting said at least one electric input signal(s) to a digitized signal represented by discrete samples s<sub>q</sub>(p), where p is a time sample index,  
• a processor for processing said at least one electric input signal s<sub>q</sub>(p) to a processed signal;  
• an output transducer (OT) for converting an electric signal including said processed signal to an acoustic signal s";  
a forward signal path of the hearing device being defined from an acoustic input to said at least one input transducer to an acoustic output of said output transducer having a forward signal propagation delay  $\tau_{HI<sub>q</sub>}$  of the hearing device, the hearing device further comprises a compensation unit for at least partially cancelling directly propagated sound from said sound field S that is propagated to the ear canal via a direct acoustic propagation path, wherein the compensation unit is configured to predict said directly propagated sound and to play it in opposite phase of said directly propagated sound. A method of operating a hearing device is further disclosed.

IPC 8 full level  
**H04R 25/00** (2006.01)

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**H04R 3/02** (2013.01 - CN); **H04R 25/453** (2013.01 - CN); **H04R 25/505** (2013.01 - EP US); **H04R 25/554** (2013.01 - US);  
**H04R 25/30** (2013.01 - EP); **H04R 2225/43** (2013.01 - EP US); **H04R 2460/01** (2013.01 - EP US)

Citation (search report)  
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• [X] US 2018376258 A1 20181227 - TIEFENAU ANDREAS [DK], et al  
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Designated contracting state (EPC)  
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Designated extension state (EPC)  
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DOCDB simple family (publication)  
**EP 3681175 A1 20200715**; **EP 3681175 B1 20220601**; CN 111432318 A 20200717; CN 111432318 B 20240416; DK 3681175 T3 20220704;  
US 11109166 B2 20210831; US 2020221236 A1 20200709

DOCDB simple family (application)  
**EP 20150419 A 20200107**; CN 202010023574 A 20200109; DK 20150419 T 20200107; US 202016737624 A 20200108